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Bilateral spontaneous inter-trochanteric fractures of proximal femurs

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ABSTRACT

INTRODUCTION: Bilateral spontaneous inter-trochanteric fractures of the proximal femur are rare. We report an unusual case of bilateral intertrochanteric fractures of the proximal femur in a 92 year old lady.
PRESENTATION OF CASE: A 92 year old lady presented to us with one week history of pain in both hips and poor mobilisation. There was no history of mechanical fall. The initial plain films of the hips did not show any fractures and the diagnosis was made by MRI scans. She underwent bilateral fixation of the fractures with dynamic hip screws. After a period of rehabilitation she returned to the pre injury mobilisation status.
DISCUSSION: Bilateral spontaneous intertrochanteric fractures of the hip due to osteoporosis are not that common. These rare fractures are usually associated with major trauma, renal disease, osteoporosis, osteomalacia, long term corticosteroid treatment and epilepsy.
CONCLUSION: Early diagnosis with high index of suspicion and appropriate investigations are mandatory in the management of these fractures.

1. Introduction

Bilateral fractures of the Neck of the Femur are rare.[1,2] They usually occur following major trauma, or as a result of primary or secondary bone disease.[3–5] There are few case reports of bilateral intracapsular fractures of hip in the literature.[6]The proximal femur is one of the commonest site for insufficiency fractures.[7] The proximal femur is routinely exposed to high-energy maximal-bending movements.[8,9] Insufficiency fractures are a type of stress fracture, which are the result of normal stresses on abnormal bone. They are most frequently seen in the setting of osteoporosis, although any process which weakens bone is a risk factor.

Early diagnosis is best made with bone scan or MRI, as plain films may initially appear normal. MRI is as sensitive as bone scanning but is of higher specificity, both in isolating the exact anatomic location and in distinguishing fractures from tumours or infection.[10]

2. Case report

A 92-year-old lady presented to the Accident and Emergency Department with history of pain in both hips and difficulty in mobilisation for the past few days. There was no definite history of significant falls. She was mobilising well independently before. She was a nursing home resident. The past medical history included dementia, ischaemic heart disease and epilepsy.

She was resuscitated in the Accident and Emergency Department. Clinical examination revealed no deformities of both legs and severe pain on passive movement of both hips. X-ray of his pelvis showed no evidence of hip fractures on both sides (Fig. 1).

She was admitted in to the elderly medicine rehabilitation ward for pain control and physiotherapy for supervised mobilisation. Over the next three days the pain in both the hips got gradually worsened. A MRI scan of the pelvis including both hips was carried out to find the cause of on-going pain and also to rule out occult fracture neck of femurs. The MRI scan revealed bilateral displaced extra capsular fractures of proximal femurs (Fig. 2).

The decision was taken to treat these fractures with closed reduction and Dynamic Hip Screw fixation on both sides. The check X-rays after the surgery was satisfactory (Fig. 3). The postoperative period was uneventful. She was started with mobilisation exercises with the help of experienced elderly care physiotherapists. She regained her pre-injury mobilisation status and was discharged back to the nursing home.

3. Discussion

Bilateral inter trochanteric fractures are rare in the elderly age group. They usually occur as a result of a violent injury and the combination of strong forces, including rotation acting on both legs simultaneously or consecutively. These injuries indicate that a high energy transfer occurred at the time of the impact. Bilateral fractures pose a threat to life and these patients require fluid resuscitation, blood transfusion and close preoperative and postoperative monitoring.[11]

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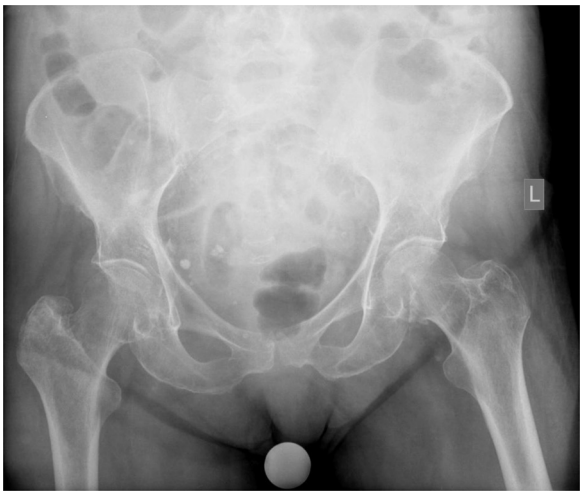

Fig. 1. Plain radiograph with no evidence of fractures.

Insufficiency fracture is defined as an injury that occurs when minimal stress is applied to abnormal bone characterised by decreased elastic resistance.[12] They occur in elderly patients or in postmenopausal women with osteoporotic bone.[13]

Patients with insufficiency fractures may present after minor trauma or may have symptoms of low back, pelvic, or groin pain that are often vague and non-specific. In order to avoid a delay in diagnosis, an insufficiency fracture should be considered in all patients who have become non ambulatory or pain with mobilisation.[14]

The most sensitive test to assess occult insufficiency fractures around the hip is MRI. It is superior to conventional radiograph, which used to be the standard for many years.[15,16] Standard imaging sequences include T1-weighted fast-spin echo (FSE), fluid sensitive (intermediate-or T2-weighted) FSE sequences and sequences. While fluid sensitive sequences are more sensitive in visualising bone marrow changes, T1-weighted FSE sequences may better show fracture lines and the morphology of the bone and

Fig. 2. T-2 weighted MRI picture showing high intensity signal in both intertrochanteric region suggesting fractures.

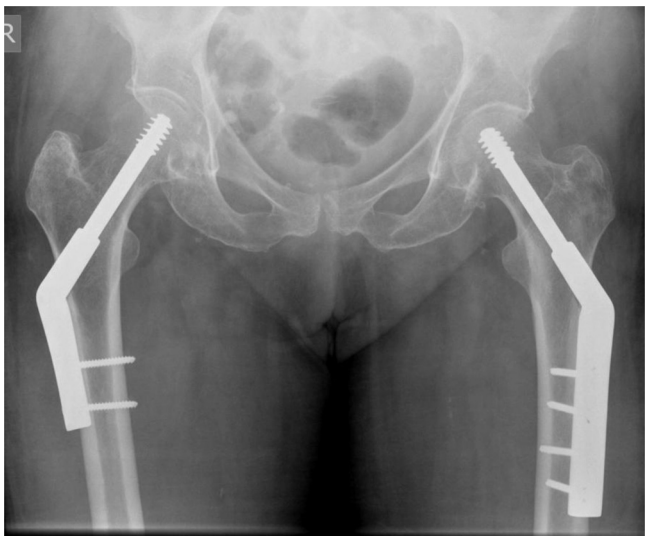

Fig. 3. Post operative radiographs with DHS fixation in situ.

fracture.[17] It should be noted that at the pelvis not infrequently several insufficiency fractures are found in different locations and the standard protocol should always cover the entire pelvis, instead of only the painful area.

Akali et al. in their article described bilateral avulsion fractures of greater trochanters in a patient with chronic renal failure.[18] H. Powell stated that one of the causes of bilateral inter trochanteric fractures are due to generalised convulsions.[19]

Bone loss resulting in fractures of the axial and appendicular skeletons in patients receiving long-term glucocorticoid therapy is well-recognized.[20] Secondary osteoporosis with long standing steroid intake is one of the reasons for bilateral fractures of the proximal femur.[21] Osteopenia occurs in areas having a high content of trabecular bone, with a rapid turnover rate and it results from a number of factors that adversely affect calcium homeostasis.[22] Even low-dose steroids may have a deleterious effect on the bone.[23]

The treatment of extra capsular fractures of the hip depends on the fracture pattern and stability. The sliding hip screw and plate is the implant of choice for stable and displaced inter trochanteric fractures. The use of intramedullary devices is reserved for unstable fractures with loss of medial buttress support, fractures with sub trochanteric extension and reverse-obliquity fractures.[24]

4. Conclusion

Bilateral intertrochanteric fractures of the hip are very rare. We observed that in elderly patients with sudden onset of hip pain and normal plain radiographs, a MRI scan is essential in the diagnosis of these fractures.

Conflict of interest statement

There is no competing interest in relation to this article. No financial or funding has been received from anybody or organisation.

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Consent

Informed consent has been obtained.

Author contributions

The author has contributed to study concept, design data collection, data analysis and writing of the paper.

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